

**SAVANNAH RIVER**

**SITE PROFILE**

**December 1999**

**Office of Oversight  
Environment, Safety and Health  
U.S. Department of Energy**

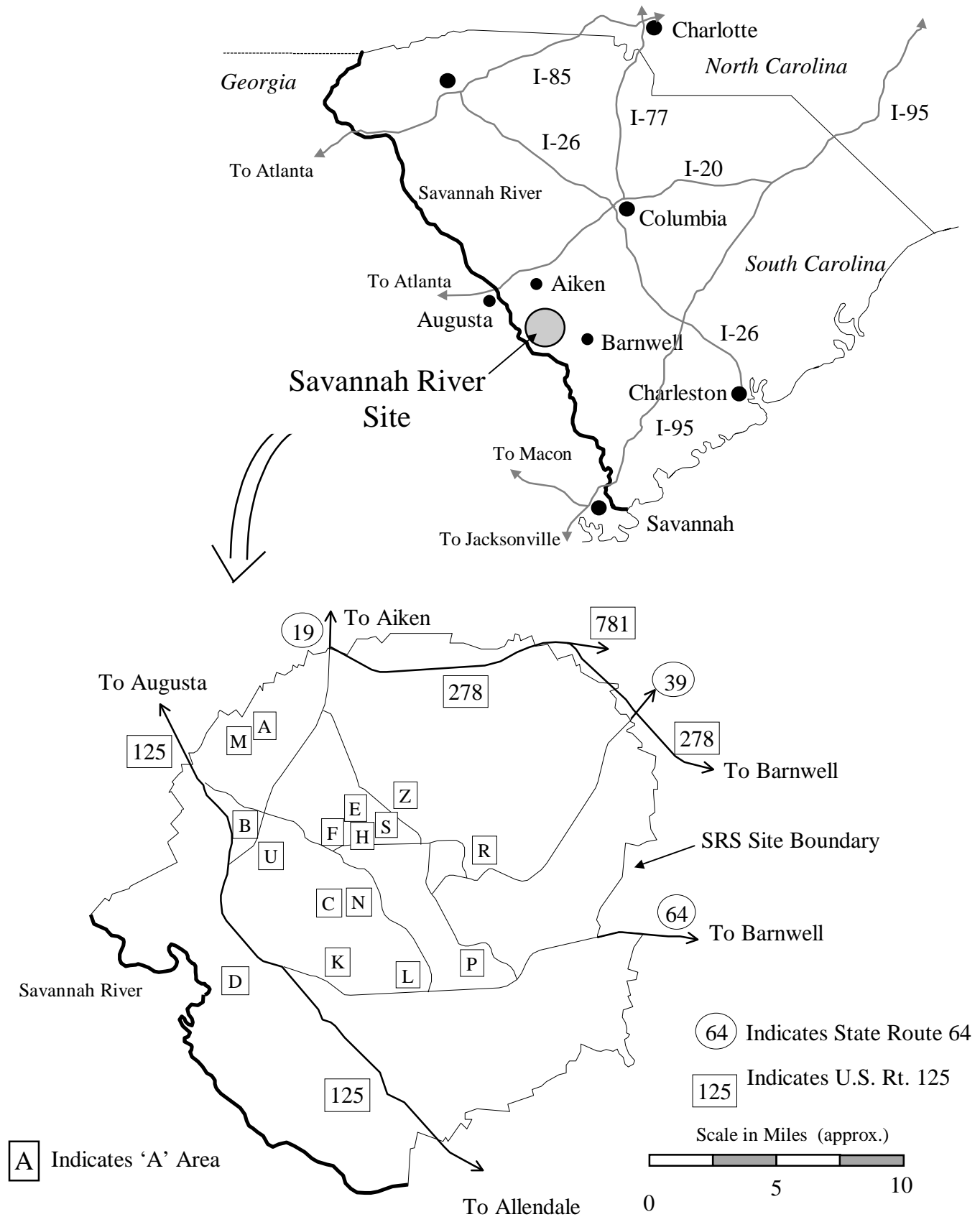
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Site profiles provide information on Department of Energy sites, including background; major environment, safety, and health programs, initiatives, and activities; items for management attention; and performance.

The electronic version of this site profile and other Office of Oversight documents referenced in this document can be accessed through the Internet at **<http://www.tis.eh.doe.gov/oversight/bookcase2.html>**.

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Savannah River Site Map

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## SAVANNAH RIVER

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### BACKGROUND

#### Description

The Savannah River Site (SRS) complex covers 198,344 acres (310 square miles) located approximately 25 miles southeast of Augusta, Georgia, in the state of South Carolina. It borders 27 miles of the Savannah River between western South Carolina and Georgia. Established in 1950, SRS was constructed to produce the basic materials used in the fabrication of nuclear weapons, primarily tritium and plutonium-239. Later, the mission was expanded to include the production of other special radioactive isotopes to support research in nuclear medicine, space exploration, and commercial applications.

The SRS facilities are geographically dispersed over the site in alphabetically designated areas. The five isotope production reactors are located in the K-, L-, P-, C-, and R-Areas; all five are in a permanent shutdown condition. D-Area has been shut down and de-inventoried. L and K Areas store spent reactor fuel and heavy water. K Area also stores highly enriched uranium (HEU) and future plans include the storage of plutonium (Pu). Chemical processing and waste management facilities (including the “tank farms”) are located in the F- and H-Areas. The tritium processing and the Receiving Basin for Offsite Fuel (RBOF) facilities are located in H-Area. The A-Area contains administrative offices, laboratories, technical shops, engineering offices, and support facilities that focus on research and development (R&D) associated with nuclear material processing, waste management, and environmental remediation. The Low Level Waste Disposal Vault, the Burial Grounds, and most of the radioactive solid waste storage and characterization facilities are located in E-Area. The M-Area contains the old reactor fuels and target rod manufacturing and assembly

facilities, which are the subject of a long-term deactivation process. The Defense Waste Processing Facility (DWPF) and Saltstone facility are located in the S- and Z-Areas, respectively, in close proximity to H-Area.

*The site's key facilities are described in Appendix A. Each facility's description includes its mission/status, hazard classification/authorization basis, worst-case design basis accident, and principal hazards and vulnerabilities. For the purpose of the profile, a key facility is a facility, building, or complex that is significant from an environment, safety, or health perspective.*

#### Mission

The site describes their mission as stewardship of the weapons stockpile, nuclear materials, and environment. More specifically, the site serves the national interest by ensuring that programs, operations, and resources are managed in a safe, open, and cost-effective manner to:

- Support current and future national security requirements
  - Reservoir surveillance
  - Tritium reprocessing
  - Tritium production using commercial light-water reactor (CLWR) technology with the accelerator production of tritium (APT) as backup.
- Reduce the global nuclear proliferation danger
  - Safe and secure storage of special nuclear material (SNM)
  - Disposition of excess nuclear weapon materials
  - Receipt, storage, management, and ultimate disposal (via shipment to a Federal repository) of foreign and domestic research reactor spent nuclear fuel.

- Protect and restore the environment while managing waste and nuclear materials
  - Environmental remediation of waste sites
  - Waste processing, stabilization, and disposal
  - Cleanup and disposition of contaminated facilities (including five shutdown production reactors, two chemical separation plants, and 51 high-level waste underground storage tanks)
  - Management of natural resources
  - Monitoring of environmental releases.
- Conduct mission-supportive research and technology development.

### Management

The lead program secretarial office is the U.S. Department of Energy (DOE) Office of the Assistant Secretary for Environmental Management (EM). The Assistant Secretary for Defense Programs (DP), the Director, Office of Nonproliferation and National Security (NN), and the Director, Office of Fissile Materials Disposition (MD) also have programmatic interests at the site. The principal Headquarters offices and their areas of involvement are indicated in Table 1.

**Table 1. Principal Headquarters Program Office Responsibilities for Savannah River**

Headquarters Program Office	Responsibility
<i>Assistant Secretary for Environmental Management (EM)</i>	<i>Lead Program Secretarial Office</i>
Office of Eastern Operations (EM-32)	Waste management
Office of Eastern Area Programs (EM-42)	Environmental restoration
Savannah River Office (EM-63)	Nuclear material and facility stabilization
<i>Assistant Secretary for Defense Programs (DP)</i>	<i>Cognizant Secretarial Office</i>
Office of Stockpile Stewardship and Management (DP-20)	Tritium recycling and stockpile management
Office of Nonproliferation and National Security (NN)	Nuclear material safeguards and security
Office of Fissile Materials Disposition (MD)	Disposition of excess nuclear weapons materials

Contractor activities at SRS are managed by the DOE Savannah River Operations Office (SR). The Savannah River integrated team management contract was awarded to the Westinghouse Savannah River Company (WSRC), the integrating management contractor, effective October 1, 1996. The five-year, \$6 billion contract is a cost-plus-award-fee contract that provides payment of incentive and award fees to contractors only if they achieve specific, performance-based results. Every six months, the award and incentive fees are

determined based on contractor performance in accordance with the current Performance Evaluation Plan.

Other contractors teamed with WSRC include Bechtel Savannah River Company, Inc.; Babcock & Wilcox (B&W) Savannah River Company; and British Nuclear Fuels Limited (BNFL) Savannah River Corporation. Specific team responsibilities are indicated in Table 2. A significant number of subcontractors also support this team.

**Table 2. Savannah River Operating Contractors**

<b>DOE Savannah River Operations Office</b> Responsible for management and administration of the prime contract	
<b>Westinghouse Savannah River Company</b> Integrating management contractor, responsible for the site's nuclear facility operations; Savannah River Technology Center; environment, safety, safeguards and security, health, and quality assurance; and all of the site's administrative functions	
<b>Contract Partners</b>	<b>Responsibilities</b>
<b>Bechtel Savannah River Company, Inc.</b>	Environmental restoration, project management, engineering, construction activities, and operation of specialized groundwater treatment systems located in F-Area and H-Area.
<b>B&amp;W Savannah River Company</b>	Disposition (i.e., deactivation, surveillance and maintenance, decontamination, and decommissioning) of excess facilities and associated equipment.
<b>BNFL Savannah River Corporation</b>	Management of SRS solid waste program, including treatment, storage, and disposal of low-level radioactive, transuranic, mixed, and hazardous waste streams; operation of the Consolidated Incinerator Facility, Effluent Treatment Facility, and Saltstone facility.

The Savannah River integrated team management contract includes the following performance objectives:

- Maximizing the conversion of high-level liquid waste into solid (glass) form by operation of the DWPF
- Reducing risks to workers, the public, and the environment by closing old high-level waste storage tanks
- Completing Defense Nuclear Facilities Safety Board (DNFSB) Recommendation 94-1 nuclear material stabilization commitments by the end of fiscal year (FY) 2005 to reduce risks to workers and the public resulting from material exposure and the potential for inadvertent nuclear criticality
- Expediting completion of environmental restoration activities
- Consolidating tritium operations into fewer facilities while meeting all production requirements to permit earlier cleanup of unneeded facilities.

Other significant contractors/interagency agreements at SRS include Wackenhut Services, Inc., Savannah River Site (WSI-SRS), the protective force management and operating contractor, which is responsible for site physical security; the University of Georgia, which manages the Savannah River Ecology Laboratory; the SRS Natural Resource Management and Research Institute, an element of the U.S. Forestry Service, which is responsible for forest management; and the U.S. Army Corps of Engineers, which assists with oversight of design and construction activities. These contracts/agreements have been made directly with SR. There were approximately 14,000 people working at the site as of January 31, 1999, including site operating contractors and subcontractor personnel; of these, approximately 500 are SR employees.

As a result of a series of Westinghouse Electric Corporation reorganizations in 1996 and 1997, WSRC eventually became part of Columbia

Broadcasting Systems (CBS). In late March, CBS completed the sale of its Energy Systems and Government and Environmental Services businesses to a joint partnership of Morrison Knudsen Corporation (MK) and BNFL. The new WSRC parent is the Westinghouse Government Services (WGS) company, which is wholly owned by MK, and in which BNFL holds a 40 percent passive interest (through a U.S. holding company) for security purposes. WSRC is expecting no immediate changes in its management staff or its contract at SRS.

### Budget

*The information appearing in this section has been gathered from a number of sources and*

*represents the best available budget information at the time of profile publication. This information can be dynamic, depending on the point in the budget cycle at which it is obtained. It is included to provide the reader with a sense of the magnitude and sources of the budget for this site. It is not intended to be the definitive source of budget information.*

EM is the SRS landlord. The approved SRS operating budget for FY 1999 was approximately \$1.5 billion; a slightly larger budget (\$16 million increase) has been requested for FY 2000. Table 3 illustrates the total operating budget breakdown by programmatic office.

**Table 3. Major DOE Program Funding (In \$M)**

Organization	FY 1999 Approved	FY 2000 Requested
Office of Environmental Management (EM)	\$1,281	\$1,292
Office of Defense Programs (DP)	158	167
Office of Fissile Materials Disposition (MD)	9	10
Other Program Offices	59	54
<b>Total</b>	<b>\$1,507</b>	<b>\$1,523</b>

### Significant Commitments to Stakeholders

SR solicits stakeholder participation in the SRS decision-making process, primarily through public forums and the SRS Citizens Advisory Board (CAB). Approximately two forums are held annually to discuss specific site issues of public interest. The site publishes a monthly Environmental Bulletin, and interested parties can obtain additional information about site activities by telephone and/or the Internet.

The SRS-supported CAB is composed of 25 area citizens of diverse backgrounds who provide informed recommendations to the DOE, the Environmental Protection Agency (EPA), and the South Carolina Department of Health and Environmental Control regarding environmental restoration, waste management, and related SRS

activities. These recommendations, focusing on health and safety issues, cover a range of topics, including site budgets; shipments of Pu-bearing residues and spent nuclear fuel to SRS; the handling of various site-generated wastes; external regulation of site facilities by the Nuclear Regulatory Commission; and the dispositioning of excess and surplus site facilities.

The CAB has the following three issues-based subcommittees:

- Environmental Remediation and Waste Management Subcommittee
- Nuclear Materials Management Subcommittee
- Risk Management and Future Use Subcommittee.

Specific information regarding CAB and subcommittee activities can be found on the SR Web page, [www.srs.gov](http://www.srs.gov).

### Defense Nuclear Facilities Safety Board (DNFSB) Recommendations

DNFSB recommendations either exclusively applicable to or with particular significance for SRS are identified in Table 4.

**Table 4. Site-specific DNFSB Recommendations**

<b>DNFSB Recommendation</b>	<b>Subject</b>	<b>Status</b>
94-1, <i>Improved Schedule for Remediation in the Defense Nuclear Facilities Complex</i>	Recommends accelerated treatment of fissile materials and other radioactive substances in spent fuel storage pools, reactor basins, reprocessing canyons, processing lines, and various buildings once used for processing and weapons materials manufacture to convert them to forms more suitable for safe interim storage.	Thirty of the 39 original implementation plan milestones have been completed, and three have been deleted by consolidation with other items. Revision 1 to the implementation plan, which combines all remaining activities in nine milestones, was issued 12/98. All remaining activities are scheduled to be completed within six years. Stabilization activities requiring new facilities and/or technologies will present the greatest challenge.
96-1, <i>In-Tank Precipitation System at the Savannah River Site</i>	Recommends the delay of planned testing until there is an improved understanding, both qualitative and quantitative, of the mechanisms by which benzene is formed during the precipitation process.	In-tank precipitation (ITP) startup preparations, including potential modifications to the ITP process, were suspended late in 1997 due to concerns regarding benzene generation. EM-1 has concurred with the SR recommendation that the two most promising salt disposal options (i.e., small tank precipitation and ion exchange) be pursued on a primary and secondary alternative basis, respectively. Direct disposal in grout is still being considered.

## MAJOR ENVIRONMENT, SAFETY, AND HEALTH INITIATIVES/ACTIVITIES

### Spent Fuel Storage and Management

The site continues to receive and store foreign and domestic research reactor spent nuclear fuel. The foreign receipts are part of a nuclear non-proliferation policy to discourage international commerce in materials that can be used to produce nuclear weapons. The fuel is sent to either the Receiving Basin for Offsite Fuel or the L-Reactor disassembly basin for underwater

storage; other reactor fuel assemblies are being stored underwater in the K disassembly basin. A relatively small portion of the approximately 48 metric ton inventory will be processed under the DNFSB Recommendation 94-1 program. The bulk of the inventory will eventually be processed in accordance with the final Spent Nuclear Fuel Environmental Impact Statement (EIS) and the Record of Decision (ROD) for safe interim storage at SRS, pending transport to a geologic repository for disposal. The EIS is expected to be issued in the winter of 1999, and the ROD can be issued no sooner than 30 days after the EIS.

## Environmental Management

In June 1998, SR published the document "Accelerating Cleanup: Paths to Closure." The actions proposed in this document are consistent with the overall EM goal of cleaning up most of the DOE sites by 2006. At SRS, the cleanup will extend beyond 2006 due to the variety of nuclear materials, the magnitude of legacy waste, and the number of environmental sites that will have to be addressed. The EM mission at SRS is expected to be completed by the end of FY 2038, beyond which DOE will retain a continuing stewardship role that will require ongoing monitoring and maintenance.

Significant elements of the "Accelerating Cleanup" document include completing 65 of 84 environmental remediation actions on high-risk release sites and emptying 19 high-level waste tanks by 2006; stabilizing nuclear materials containing plutonium, neptunium, highly-enriched uranium, americium, and curium by 2004; and vitrifying 35 percent of the estimated 6,000 canisters of high-level waste by 2006. All high-level waste is to be vitrified by 2024. "Stabilizing" refers to the conversion of various nuclear materials (e.g., impure isotopic mixtures, irradiated fuel assemblies, scrap from the machining of plutonium/uranium ingots) into forms suitable for long-term safe storage (i.e., forms that are not chemically reactive or do not have inherent criticality risks).

The site has an inventory of approximately 1,600 metric tons of heavy water, primarily for use as a moderator in the now shutdown production reactors. Of that amount, 950 metric tons has been identified as excess to programmatic needs, and WSRC has been negotiating its sale to Atomic Energy of Canada, Ltd. The sale is expected to be finalized in winter 1999. With the consolidation of heavy water storage in K- and L-Areas and the shutdown of the D-Area processing facilities, the largest source of risk for accidental release of tritium into the Savannah River will be removed. In addition, the revenue from the sale of the heavy water will fund additional cleanup efforts at the site.

SRS has received independent third-party certification of its conformance to the requirements of international standard ISO 14001, "Environmental Management System." SRS initially achieved certification on September 18, 1997. SRS has maintained its certification through independent annual inspections in 1998 and 1999.

## Nuclear Material Stabilization

In February 1999, the Secretary of Energy changed the SRS mission to include most of the complex's Pu disposition work, including pit disposition (from retired nuclear weapons) and the mixed oxide fuel alternative (MOX), in which Pu is blended with other materials to produce fuel for commercial nuclear generating stations. This mission change required the site to reexamine the scope of affected projects already in the design phase, and to include the capability to accommodate this additional work. As a result, the final schedule and funding are on hold for both the Actinide Packaging and Storage Facility (APSF), which will provide state-of-the-art, safe, secure storage for Pu and other SNM, and the Plutonium Immobilization Facility, which will convert surplus, weapons-grade Pu to a long-term storage form that prevents unauthorized access. Resolution of international safeguards questions regarding acceptable disposition alternatives will also influence budget and schedule decisions.

Eventually, extending the schedules for these facilities will restrict processing alternatives and could threaten the completion of milestones of the DNFSB Recommendation 94-1 Implementation Plan. In the meantime, efforts continue toward completing material stabilization milestones as committed in Revision 1 of the Implementation Plan. The revised plan consolidates the remaining site actions into nine milestones, five of which are contingent upon the December 2001 startup of the APSF, which is itself at risk due to factors outside the control of the site.

### Nuclear Materials Stabilization Facilities

The F- and H-Canyons are being utilized, using the original processes, until the material stabilization tasks that require operation of these facilities are completed. These stabilization activities address the nuclear material stabilization milestones documented in the revised implementation plan addressing DNFSB Recommendation 94-1.

The F-Canyon continues to stabilize irradiated reactor material and inventories of Pu scrap material that are stored at SRS. FB-Line is in operation and is stabilizing legacy Pu-bearing materials. The Pu product metal is being stored using the bagless transfer system, which results in the material being contained within an inerted, seal-welded, stainless steel can. This process produces a safer, more stable package for interim storage of the Pu metal.

H-Canyon Phases I and II are operating. These processes consist of dissolving materials such as fuel assemblies in acid and performing various chemical treatments in preparation for the chemical separation process. This two-stage process results in the extraction of selected isotopes from the original materials. Phase III (2nd uranium cycle and neptunium concentration) is scheduled for startup in late spring 2000. The 2nd Product cycle, used to decontaminate either Pu or neptunium (Np) streams will not be started until needed to support HB-Line Phase II. This process step decontaminates and further purifies the uranium stream from the 1st cycle (Phase II). No major obstacles to restart of 2nd uranium cycle operations have been identified to date.

The HB-Line scrap recovery line (Phase I) is operating and is expected to continue to operate until legacy Pu material stabilization is completed. The Np oxide line (Phase II) is currently scheduled to start in December 2001. This facility will be used to stabilize Pu and Np solutions stored in H-Canyon. Phase III (Pu-238 Oxide Line) remains shut down following completion of Pu-238 processing and other

specialized Pu campaigns conducted more than a year ago.

The project to vitrify F-Canyon's highly radioactive americium/curium solution has experienced various delays, but it is progressing. In 1998, the SR Manager assigned an independent review team of offsite experts to review the technology selection, the selected form for the stabilized material, and overall project decisions regarding this DNFSB 94-1 milestone. A successful integrated vitrification run with a prototype melter was conducted in December 1998, and the team agreed that using a melter to process this material into glass to be poured into stainless steel cans was a sound approach. Current planning calls for the americium/curium vitrification process to be installed and operational in F-Canyon beginning in FY 2003, and for the solution stabilization to be completed early in FY 2005. Completion of this activity is important because the americium/curium solution represents most of the F-Canyon's radioactive source term.

### **Waste Processing and Management**

#### High-level Liquid Nuclear Waste Vitrification

The DWPF has been operating since March 1996 converting the high-level liquid nuclear waste that is stored in underground carbon-steel tanks into a solid glass form suitable for long-term storage and disposal. Production of approximately 6000 canisters over the next 25 years will be required to vitrify all high-level waste stored at SRS.

The DWPF currently treats the portion of the high-level waste that has settled on the bottom of the storage tanks (i.e., "sludge"). In this process, a molten glass-waste mixture is produced and poured into stainless steel canisters to cool and harden, after which the canister is permanently sealed. A specially-designed "Shielded Canister Transporter" moves each 5,000-pound canister from the DWPF to an underground reinforced concrete storage vault in the temporary storage building adjacent to the facility. The canisters

will be stored at SRS until a Federal repository is established.

#### M-Area Waste Vitrification

A melter facility has been operating in the M-Area Fuel Fabrication Area to vitrify a large volume of mixed, low-level, liquid waste. This activity has been completed.

#### Transuranic Waste Drums

Preliminary characterization of transuranic (TRU) waste drums to separate out low-level waste continues while awaiting final disposition and shipment of TRU waste to the Waste Isolation Pilot Project (WIPP). TRU drums that are stored under earthen mounds are being retrieved since they have exceeded their design life expectancy. Uncharacterized drums are x-rayed and assayed to determine their contents, and older TRU drums are vented and purged.

All drums have been removed from the last bermed pad (TRU Pad 3), completing the TRU drum retrieval project.

#### **Integrated Safety Management System (ISMS) Implementation**

In accordance with DOE Policy 450.4, Safety Management System Policy, WSRC has implemented integrated safety management (ISM) across SRS. The Phase I and pilot (FB-Line and DWPF) Phase II verification assessments were conducted from mid-1997 to mid-1998, and generally concluded that ISM had been implemented both programmatically and at the facility level. The WSRC contract was modified to incorporate the associated regulatory and environment, safety, and health (ES&H) clauses. WSRC is also required to include substantially the same clause in subcontracts involving complex or hazardous work.

SR conducted a Phase II verification review at the DWPF to evaluate the WSRC Facility Evaluation Board's conduct of an ISM evaluation. The Facility Evaluation Board has

incorporated the elements of ISMS verification in its evaluation methodology and is performing programmatic and facility-specific ISMS implementation reviews. SR has indicated that they will continue to monitor these Facility Evaluation Board activities.

Both SR and WSRC have taken actions at various organizational levels to address identified weaknesses and promote ISMS improvements. SR's Executive Technical Management Board, composed of senior management, was formed to enhance and institutionalize implementation of ISMS in all areas of facility operations. Similarly, WSRC's ISM Executive Steering Committee is intended to provide senior management leadership and strategic direction for ISMS implementation and has issued an ISM strategic plan for the period FY 1999 through FY 2001. Key improvements implemented during the past year include computer-based job hazard analysis training, a re-engineered bioassay program, and an enhanced WSRC corrective action program.

WSI-SRS, the site security contractor, has also implemented ISMS and has achieved Voluntary Protection Program (VPP) "Star" status. The "Major Recent Assessments" section of this profile provides more information on this effort.

#### **Decontamination and Decommissioning (D&D)**

SR has established a Facility and Asset Disposition Team, and the site's contractor has established an equivalent team, Facility and Asset Disposition Council, to manage the site's facility and asset disposition program. Both the team and the council have roles and responsibilities, as described in the SR Facility and Asset Disposition Program Plan, in ensuring that the program is managed in a consistent and efficient manner.

The Facility and Asset Disposition Program Plan was issued in August 1999. In addition to describing the program, it includes a summary of programmatic guidance and requirements that establish the framework for planning,

implementing, and verifying the entire facility and asset disposition process. More detailed information is addressed in specific implementation plans and procedures (WSRC Facility Disposition Manual 1C).

The site's established process for identifying and placing facilities on the inactive facilities list has been in existence for over a year. As facilities are declared inactive, they are transferred to the Facility Disposition Division. Evaluations of residual hazards (chemical, radiological, industrial, etc.) are conducted in each facility using a facility hazard check sheet. The risks are then ranked and prioritized, and appropriate mitigating actions are scheduled. This risk-ranked priority list, though dynamic, is formally updated annually, to be included in the budget submittal.

## ENVIRONMENT, SAFETY, AND HEALTH ITEMS FOR MANAGEMENT ATTENTION

### Conduct of Operations

*Based on a continuing series of events, sitewide improvements are needed in procedure compliance.* A review of events occurring over the past five quarters (through the end of 1998) identified a pattern of procedure-related problems ranging from actual procedure violations/non-compliances to inadequate procedural steps. These occurrences covered all areas of the site and encompassed all disciplines; included were events at both F and H separations facilities involving the improper routing or control of liquid transfers.

An analysis of the liquid-transfer events did not identify a single, common cause. More generally, procedure-related occurrences appear to have resulted from inadequate procedures for the current facility configuration, confusing procedures, failure to follow procedures correctly, and personnel error. While the impact of these occurrences has been limited to minor disruptions of operations involving no safety or health impact to workers, site areas, or the environment, these events indicate a continuing site problem with procedure content and compliance.

### Action Status

This problem, including an associated increase in the number of incidents resulting from lack of proper attention to detail in conduct of operations, was initially identified as a result of a series of events in late 1997 and early 1998. After discussions with SR, WSRC management emphasized attention to detail in good conduct of operations performance, including procedure compliance, to their organizations in staff meetings and toolbox meetings. WSRC established teams to develop specific initiatives to prevent occurrences in these areas, such as developing performance indicators more closely attuned to measuring procedure compliance and mockup training for procedure usage. Another initiative involved the development of both compliant and non-compliant work packages (for the same hypothetical job) for use in training to sensitize facility personnel to work package errors. SR has also established a separate performance indicator for procedure deficiencies/violations.

SR reports that WSRC's actions to date have been effective in improving performance, as indicated by a downward trend in the number of occurrences related to conduct of operations deficiencies, to a point roughly equivalent to pre-October 1997 performance. However, based on events related to conduct of operations during late 1998, including another liquid transfer event at H-Canyon, and the numerous reports to the DOE Occurrence Reporting and Processing System (ORPS) caused by procedural problems and personnel errors in 1999 (more than 500), it is premature to conclude that WSRC's corrective actions will be effective over the long term. Both SR and WSRC are monitoring the effectiveness of the corrective actions.

### Storage of Depleted Uranium Oxide

*On September 8, 1998, an EH Office of Oversight report noted poor storage conditions and lack of planning for the disposition of approximately 40 million pounds of depleted uranium oxide, posing potential future health and safety risks to employees, as well as potential contamination of storage facilities and surrounding areas. This depleted uranium trioxide (in powder form), which*

contains small or trace quantities of other metals, including plutonium, is currently stored in over 35,000 55-gallon drums in various buildings at the site. While some of the drums are stored in a facility that provide good environmental protection, most are stored in non-occupied metal storage buildings, many of which are in various stages of disrepair and are prone to environmental conditions that degrade the safety of material storage.

Most of the drums are extremely heavy and require the use of special forklifts for safe handling. The drums tend to dent when handled, making them more likely to collapse when stacked and providing sites for accelerated corrosion of the drum walls. Some of the drums have been placed in overpack drums because of their deteriorating condition; however, no instances of drum penetration have been observed to date.

The large amount of this material will make repackaging, processing, or moving expensive. A long-term action plan for storage was developed and approved, but the supporting funding is in jeopardy. Without action, this material will eventually present a risk of worker injury, primarily to drum handlers, as well as a risk of release, which would then require cleanup and increased treatment costs.

#### Action Status

The site has completed several short-term corrective actions that address some key concerns. Drums subject to the worst storage conditions were moved from Building 730-F (the building in worst condition), overpacked, and restacked in another building that is in better condition. Other storage buildings were inspected for adverse storage or safety conditions, and a short-term plan for storage building repairs and maintenance was developed and implemented. In addition, building and drum integrity checks were incorporated into the quarterly safety inspections. A long-term corrective action plan for storage and disposition of the drums was developed and is included in the FY 2000 Annual Operating Plan. However, reprioritization of limited funds could reduce or eliminate the actions required by the long-term corrective action plan. This material is not currently categorized as waste, but if it is declared to be waste, the cost of

disposal would be in the tens of millions. Given the significant cost of disposal, the site has identified a possible use for this material in producing dry storage casks for DWPF canisters. The DWPF has published a Notice of Intent in the *Commerce Business Daily* to include depleted uranium oxide as shielding in the casks to allow the casks to be small enough to transport. The DWPF is now developing the Request for Proposals. If this application is successful, the depleted uranium oxide would begin to be moved off site by mid FY 2000. The worst buildings would be emptied first so that these buildings would not require upgrading. This approach could eliminate this concern within the next ten years and eliminate the need for a DWPF capital project for an additional glass waste storage building.

#### **Items Deleted from the Previous Site Profile**

##### Bioassay Submittal Deficiencies

On September 21, 1998, DOE issued a preliminary notice of violation (PNOV) and proposed imposition of civil penalties in the amount of \$75,000 for multiple instances of workers failing to submit required bioassay samples over a two-year span and the failure of WSRC management to ensure that corrective actions were effective in remedying identified deficiencies. SR and WSRC assessments conducted from late 1995 into 1997 identified a significant number of instances in which bioassay samples were not submitted. Despite implementing corrective actions, the bioassay participation rate was identified by WSRC as only 21 percent in the second quarter of 1997, and significant numbers of non-submittals were still occurring in late 1997 and early 1998. The DOE investigation identified that, in violation of quality assurance requirements (10 CFR 830), WSRC failed to ensure that the bioassay program was conducted in accordance with established administrative requirements and failed to implement administrative processes to detect, correct, and prevent recurrence of instances of bioassay non-submittals.

The site completed a review of their bioassay program in late 1998 and developed changes intended to reduce the scope of the program and

prevent recurrence of problems that resulted in the enforcement action. These changes were implemented on March 1, 1999.

## RECENT SITE PERFORMANCE

### Major Events

#### Personnel Contamination

FB Line facility personnel were performing routine vault operations on September 1, 1999, when the high volume air monitor (HVAM) alarmed. Personnel in the area immediately suspended operations, secured the vault, and exited the area. Radiological Control Operations probed the retrospective air sample filter paper in the vestibule and read 140,000 disintegrations per minute (dpm) alpha. The HVAM in the vault read 80,000 dpm alpha. As they exited the Contamination Area, two persons received an alarm on the personnel contamination monitor. Appropriate alarm response procedures and abnormal operations procedures were initiated. All personnel involved in the vault operations were subsequently escorted to the F-Canyon Decontamination Facility, where nasal and saliva smears were taken. Smears were positive for seven of the individuals involved in the vault activities. These seven were then moved to the F-Area medical facility for further evaluation and processing. The facility established the third and fourth levels of the facility as Contamination Areas and confirmed that the boundaries of the Contamination Areas were intact.

The contractor and DOE each initiated an investigation. DOE initiated a Type B accident investigation, the results of which are expected to become available in winter 1999.

### Results of Major Recent Assessments

#### Safety Management Evaluation Follow-up Review

The Office of Oversight conducted a review at SRS in July-August 1999 as a follow-up to the January 1996 safety management evaluation. During the review, the Office of Oversight examined work planning and control processes being applied to operational, maintenance and construction activities

at F-Canyon and at facilities involved in tritium activities, specifically 232-H, 233-H, and 234-H.

The review team concluded that SRS had implemented effective safety management programs that resulted in improved work processes and sustained safety performance. The mature safety management programs and line management commitment to ISM implementation were translated into consistent performance of work planning and control at the facility, operational, and activity level. Personnel at the facilities that were evaluated function as cohesive teams in executing operational, maintenance, and construction tasks. Planning and scheduling of work activities, performing work consistent with hazard controls, and incorporating lessons into improved performance were found to be strengths at SRS.

SR and WSRC management are aware of the challenges to continue ISM improvements and are taking appropriate steps to address most of these. Efforts are needed to enhance the rigor and effectiveness of SR line oversight processes; the integration of hazard analysis processes; and the involvement of industrial hygiene, industrial safety, and radiological engineering personnel in work planning and control activities. Continued management vigilance should ensure adherence to implemented safety programs and procedures and further improve overall ISM implementation at the site.

#### Emergency Management Evaluation

The Office of Oversight conducted an evaluation of emergency management and preparedness at SRS February 23-March 5, 1998. Included was an evaluation of a full-participation annual emergency preparedness exercise conducted on February 25, 1998. The exercise included participation by the State of South Carolina, DOE Headquarters, Fort Jackson Explosives Ordnance Disposal personnel, and the Federal Bureau of Investigation. The security-related exercise involved the simulated capture of spent fuel casks, taking of hostages, and an explosion with the potential for an offsite radiological release.

The programmatic review, in conjunction with evaluation of the exercise and performance testing of sitewide and DWPF emergency personnel, indicated that SRS has an overall sound and mature emergency management program that includes the essential elements required by DOE Orders. SR, WSRC, and WSI-SRS demonstrated a strong commitment to establishing and sustaining a well-managed and responsive emergency management function, while appropriately balancing and controlling the impact of necessary sitewide funding and staff reductions. The evaluation team identified a number of positive program attributes as well as several weaknesses, many of which had been previously identified by SRS line management, that warranted management attention. All identified corrective actions for the Office of Oversight's findings have been completed and closed.

A more detailed discussion of the SRS emergency management evaluation can be found on the Internet at <http://tis.eh.doe.gov/oversight/reviews/index.html>, in Volume 2 of *Independent Oversight Evaluation of Emergency Management Programs Across the DOE Complex* (August 1998).

#### Interim Report on SRS Worker Health Study

The preliminary results from an ongoing health study of workers at SRS indicates that SRS workers are healthier than the general population, and that they have a lower cancer rate and smaller risk of dying from cancer. The study is tracking all SRS workers through 1999 and is being undertaken on behalf of the Consortium for Risk Evaluation with Stakeholder Participation, which is funded by DOE and the National Institute of Occupational Safety and Health.

#### Dose Reconstruction Study

A Savannah River Site dose reconstruction project was initiated by the Centers for Disease Control and Prevention (CDC) in 1992. The study, covering the period from 1951 to 1992, is being conducted to determine whether the health of people who lived near the site was affected by past releases of chemicals and radioactive materials from the site. Due to the extent and scope of this project/study, it is being completed in phases.

In a public meeting on February 4, 1999, CDC released a 1400-page draft report on Phase II of the study, during which the amounts and types of chemicals and radioactive materials discharged from the site during the study period were estimated. The draft report noted that while few actual chemical release measurements were taken for many of the early years of site operations, the available monitoring information "does not indicate that there were significant releases of toxic chemicals or heavy metals to surface water or ambient air." CDC plans to publish the final Phase II report in winter 1999. CDC will publish a comprehensive report on the dose reconstruction study upon completion of the entire study.

#### In-Tank Precipitation (ITP) Facility

At the request of the ranking minority member of the House Commerce Subcommittee on Oversight and Investigations, the General Accounting Office (GAO) conducted a review of the ITP facility. The GAO's final report, issued in April 1999, concluded that a number of factors combined to cause SR and WSRC to spend nearly \$500 million over approximately ten years before realizing that the ITP technology would work neither safely nor efficiently. The stated problems included ineffective WSRC management and SR oversight, lack of full understanding of the chemical processes involved, and changes in safety standards that resulted in project rework. SR, in conjunction with EM, provided comments on the report.

#### Waste Incineration at the Savannah River Site

The Office of Inspector General conducted an audit disclosing that the Consolidated Incineration Facility (CIF) at SRS was not operating at its permitted capacity. The CIF was operated at about 8 percent of capacity in FYs 1997 and 1998 to minimize the risk of unexpected errors and equipment failures during system start-up, and to accommodate special handling and disposal requirements associated with burning chemicals listed in the Resource Conservation and Recovery Act (RCRA). However, in FY 1999 and beyond, Westinghouse planned to operate the CIF at no more than 32 percent capacity. This occurred because the Department designed the CIF to

incinerate more waste than the Site had available for treatment.

Although Westinghouse may never have sufficient waste available to operate the CIF at its permitted capacity, the audit disclosed several process improvements which could increase the efficiency of the CIF and significantly reduce its operating costs. Specifically, the audit found that the rate of PUREX and solid waste incineration at the CIF could be significantly increased. Westinghouse could increase the amount of PUREX incinerated per year by using a second blend tank and using less water and fuel oil to dilute the PUREX solution. These changes could reduce the cost of PUREX incineration and reduce the time required to complete the incineration. Also, Westinghouse could reduce the cost of solid waste incineration by increasing feed rate. These four changes could reduce the total operating costs to incinerate the projected waste streams by \$595 million.

SRS Management concurred with the finding and the first three recommendations. In terms of corrective actions, Management agreed to revise the performance incentive covering CIF operations to reward the incineration of undiluted PUREX only. Management also agreed to use a second dilution tank, and to reduce the dilution ratio of PUREX, with a goal of 50:1 or lower. When completed, these three actions should save \$576 million.

Regarding recommendation four, to increase the feed rate for solid waste, management agreed with the intent but found that its proposed alternative action was not fully responsive. Rather than increase the feed rate, management's alternative

plan for improving the efficiency of solid waste burning was to study solid waste disposal methods other than incineration. This has the potential to reduce future costs, but will not reduce the immediate cost of burning solid waste.

#### VPP "Star" Status for WSI-SRS

A DOE Headquarters VPP review team was on site in August 1998 to evaluate the WSI-SRS application for recognition as a DOE "Star" site. As a result of the team's review of WSI-SRS's safety and health programs, WSI-SRS was recommended for "Star" status. Subsequently, the new Departmental focus on ISM resulted in an additional requirement for WSI-SRS to have a validated ISM program to attain this status. The Phase I and II ISM verification review was completed in March 1999, and the review team concluded that WSI-SRS has implemented an effective ISM system. WSI-SRS was therefore granted VPP "Star" status in July 1999. The certificate and VPP Star Flag were presented to WSI in an official site ceremony.

#### VPP "Merit" Status for WSRC

WSRC applied for "Star" status under the DOE VPP in 1998. The Headquarters review team did not recommend "Star" status for WSRC but did recommend "Merit" status; the review team concluded that opportunities for improvement in worker involvement needed to be addressed before WSRC would be eligible for "Star" status. WSRC has accepted "Merit" status and is working to complete actions required for "Star" status.

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## Appendix A. Key Facility Summary

FACILITY	MISSION/ STATUS	HAZARD CLASSIFICATION/ AUTHORIZATION BASIS	WORST CASE DESIGN BASIS ACCIDENT	PRINCIPAL HAZARDS AND VULNERABILITIES
Defense Waste Processing Facility (DWPF)	<b>Mission:</b> Receive, treat, and immobilize alkaline slurries of aqueous high-level waste from the F- and H-Area Tank Farms in a durable, borosilicate glass form  <b>Status:</b> Operating	Category II facility; Safety Basis: Safety Analysis Report (SAR) WSRC-SA-6, Rev. 17, updated April 1998	Explosion in inter-area transfer line jacket; MOI <sup>(1)</sup> : 9.5E+3 mrem <sup>(2)</sup>	Radiological and chemical, radioactive sludge and precipitate, benzene, explosions, combustible gases
Saltstone	<b>Mission:</b> Immobilize and permanently dispose of decontaminated salt solutions from F- and H-Area Tank Farms as low-level waste  <b>Status:</b> Operational (in standby mode)	Category III facility; Safety Basis: Justification for Continued Operation (JCO) WSRC-RP-92-444, updated July 1997	Failure of feed tank with evaporation (unmitigated); Co-located worker: 3.25E+3 mrem, MOI: 28 mrem	Radiological and chemical, low-level radiation, sodium hydroxide
Tritium 232-H	<b>Mission:</b> Recycle and purify tritium. Conduct reservoir surveillance.  <b>Status:</b> Operating	Category II facility (Lines I & II), Safety Basis: WSRC-SA-1-2, Rev. 1 Dated October 1999	Full Facility Fire Co-located worker: 6.33E+04 mrem MOI: 4.0E+03 mrem	Radiological: tritium exposure
Tritium 233-H (RTF)	<b>Mission:</b> Load tritium into new and recycled nuclear weapon reservoirs, unload tritium from weapon reservoirs returned from the field, and recycle and purify tritium  <b>Status:</b> Operating	Category II facility; Safety Basis: WSRC-SA-1-2, Rev. 1 Dated October 1999	Full Facility Fire Co-located worker: MOI: 4.0E+03 mrem m	Radiological: tritium exposure
Tritium 234-H	<b>Mission:</b> Weapon reservoir shipping and receiving functions  <b>Status:</b> Operating	Category II facility; Safety Basis: WSRC-SA-1-2, Rev. 1 Dated October 1999	Fire Area Fire Co-located worker: 1.89E+04 mrem MOI: 2.5E+03 mrem	Radiological: tritium exposure
K Reactor	<b>Mission:</b> Highly enriched uranium and Pu are being stored in the Assembly area; irradiated fuel assemblies are being stored in the Disassembly area. Contaminated heavy water moderator is being stored in the K-Area.  <b>Status:</b> Reactor in permanent cold shutdown.	Category II facility; Safety Basis: BIO WSRC-TR-95-0497, Rev. 2, June 99	Seismically-induced moderator spill; Co-located worker: 3.09E+3 mrem, MOI: 4.77E+2 mrem (unmitigated)	Radiological and inadvertent criticality

Note 1: Maximum Offsite Individual; equivalent to "Site Boundary"

Note 2: Unless otherwise noted, all dose rates are "mitigated" (i.e., filtering/shielding mechanisms credited)

## Appendix A. Key Facility Summary (cont'd)

FACILITY	MISSION/ STATUS	HAZARD CLASSIFICATION/ AUTHORIZATION BASIS	WORST CASE DESIGN BASIS ACCIDENT	PRINCIPAL HAZARDS AND VULNERABILITIES
L Reactor	<p><b>Mission:</b> L disassembly area is being used to store irradiated fuel assemblies and irradiated foreign and domestic research reactor fuels. Contaminated heavy water moderator is being stored in the L-Area.</p> <p><b>Status:</b> Reactor in permanent cold shutdown.</p>	Category II facility; Safety Basis: BIO WSRC-TR-95-0054, Rev. 2, January 99	Seismically-induced moderator spill; Co-located worker: 3.6E+3 mrem, MOI: 3.12E+2 mrem (unmitigated)	Radiological and inadvertent criticality
P, C, and R Reactors	<p><b>Mission:</b> Depleted uranium is being stored in the R assembly area. Heavy water is stored in C area.</p> <p><b>Status:</b> Reactors in permanent cold shutdown.</p>	Category II facilities; Safety Basis: BIO WSRC-TR-95-0105, Rev. 0, June 97	Seismically-induced moderator spill; Co-located worker: 1.6E+4 mrem, MOI <sup>(1)</sup> : 4.05E+1 (unmitigated)	Radiological
M-Area Fuel Fabrication Facilities	<p><b>Mission:</b> Enriched uranium inventory; depleted uranium being stored in Buildings 330-M and 331-M.</p> <p><b>Status:</b> Shut down.</p>	Category II facility; Safety Basis: JCO DPSTSA-300-3A, Addendum 1, Rev. 1a, Feb. 97	Fire; MOI: 9.2E+1 mrem (unmitigated)	Radiological
Receiving Basin for Offsite Fuel (RBOF)	<p><b>Mission:</b> Receive and provide interim storage of irradiated nuclear fuel elements from domestic and foreign research reactors; regenerate spent resin used to maintain SRS fuel basin water chemistry.</p> <p><b>Status:</b> Operating</p>	Category II facility; Safety Basis: SAR WSRC-SA-11, Rev. 0, Oct. 98	Criticality; Co-located worker: 4.9E+3 mrem, MOI: 3.3 mrem (unmitigated)	Radiological and inadvertent criticality
F-Canyon	<p><b>Mission:</b> Stabilize, through chemical processing, various materials including reactor targets and offsite-generated plutonium scrap and residues.</p> <p><b>Status:</b> Operating</p>	Category II facility; Safety Basis: BIO WSRC-RP-93-1215, Rev. 6, April 98	Transfer error to outside; Co-located worker: 3.61E+4 mrem <sup>(2)</sup> , MOI: 4.42E+3 mrem	Radiological, inadvertent criticality, and chemical (plutonium, americium, curium, strong acids, caustics, flammable solvents, reactive resins)
FA-Line	<p><b>Mission:</b> No current mission</p> <p><b>Status:</b> Permanently shut down</p>	Category III facility; Safety Basis: BIO WSRC-RP-93-1215, Rev. 6, April 98	Hydrogen explosion; MOI: 1.95E+2 mrem	Radiological
FB Line	<p><b>Mission:</b> Receives dilute, acidified product solutions from F-canyon, concentrates them, and converts product materials into a metal form.</p> <p><b>Status:</b> Operating</p>	Category II facility; Safety Basis: BIO WSRC-RP-93-1102, Rev. 5, April 99	Earthquake; Co-located worker: 6.0E+2 mrem, MOI: 3.89E+2 mrem	Radiological, inadvertent criticality, and chemical (plutonium, strong acids, caustics, flammable solvents, reactive metals and resins)

Note 1: Maximum Offsite Individual; equivalent to "Site Boundary"

Note 2: Unless otherwise noted, all dose rates are "mitigated" (i.e., filtering/shielding mechanisms credited)

## Appendix A. Key Facility Summary (cont'd)

FACILITY	MISSION/ STATUS	HAZARD CLASSIFICATION/ AUTHORIZATION BASIS	WORST CASE DESIGN BASIS ACCIDENT	PRINCIPAL HAZARDS AND VULNERABILITIES
F-Area Outside Facilities	<p><b>Mission:</b> Provide general support for F-Area operations (primarily F-Canyon). Processes include bulk chemical storage and mixing, water handling, acid recovery, and evaporation.</p> <p><b>Status:</b> Operating</p>	Category II facility; Safety Basis: BIO WSRC-RP-93-1215, Rev. 6, April 98	Earthquake/external impact; Airborne: Co-located worker - 1.68E+1 mrem Liquid: Earthquake - MOI <sup>(1)</sup> : 1.8E+2 mrem <sup>(2)</sup>	Radiological, chemical reagents
247-F	<p><b>Mission:</b> No current mission; process facilities are inactive and contain residual nuclear material resulting from previous operations.</p> <p><b>Status:</b> Surveillance and maintenance, pending D&amp;D</p>	Less than Category III facility; Auditable Safety Analysis for the surveillance and maintenance activities of 247-F facility: WSRC-TR-97-0136, Rev. 0, July 97	N/A	Radiological
235-F, Plutonium Fuel Forms Facility, Actinide Billet Line, Plutonium Experimental Facility, Metallography Laboratory, Vaults	<p><b>Mission:</b> The vaults continue to be used for nuclear material storage.</p> <p><b>Status:</b> All processes are currently in shutdown/cold standby and in a reduced occupancy maintenance mode</p>	Category II facility; Safety Basis: SAR WSRC-RP-89-575, Rev. 1, Apr. 99; WSRC-RP-99-00152, Addendum 1 to SAR, Jun. 99; JCO WSRC-RP-99-00484, Oct. 99; TSR WSRC-TS-97-3 (S-TSR-F-00002), Rev. 2, Jun. 99	Earthquake-induced fire; MOI: 1.00E+2 mrem AMI: 7.00E+4 mrem	Radiological
H-Canyon	<p><b>Mission:</b> Stabilize, through chemical processing, various materials including site inventories of irradiated reactor fuel, and support the reduction of inventories of fissile isotopes.</p> <p><b>Status:</b> Operating. Frame Waste Recovery – Shutdown</p>	Category II facility; Safety Basis: BIO WSRC-RP-95-635, Rev 4-A, July 98	Circulated cooling water coil and tube leak; Co-located worker: 2.62E+4 mrem Earthquake; MOI: 1.79E+3 mrem	Radiological, inadvertent criticality, and chemical (plutonium, americium, curium, strong acids, flammable solvents, caustics, reactive resins)
HB-Line	<p><b>Mission:</b> Process into stable forms various plutonium scrap materials and various forms of plutonium and neptunium isotopes.</p> <p><b>Status:</b> Operating</p>	Category II facility; Safety Basis: BIO WSRC-RP-96-553, Rev. 3, August 99	Full facility fire with secondary events ; Co-located worker: 2.42 E+4 mrem; MOI: 3.2 E+3 mrem	Radiological, inadvertent criticality (material dependent), and chemical (plutonium, strong acids, flammable solvents, caustics)

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Note 2: Unless otherwise noted, all dose rates are "mitigated" (i.e., filtering/shielding mechanisms credited)

## Appendix A. Key Facility Summary (cont'd)

FACILITY	MISSION/ STATUS	HAZARD CLASSIFICATION/ AUTHORIZATION BASIS	WORST CASE DESIGN BASIS ACCIDENT	PRINCIPAL HAZARDS AND VULNERABILITIES
H-Area Outside Facilities	<b>Mission:</b> Provide general support for H-Area operations (primarily H-Canyon). Processes include bulk chemical storage and mixing, water handling, acid recovery, and evaporation.  <b>Status:</b> Operating	Category II facility; Safety Basis: BIO WSRC-RP-95-635, Rev. 4-A, July 98	Earthquake; MOI <sup>(1)</sup> : 8.6E+1 mrem <sup>(2)</sup>	Radiological, chemical (plutonium, strong acids, flammable solvents, caustics), inadvertent criticality
Savannah River Technology Center (SRTC)	<b>Mission:</b> Develop, test, and demonstrate equipment and techniques for nuclear material processing, environmental remediation, environmental protection, waste processing, decontamination and decommissioning, and industrial uses of SRS technologies.  <b>Status:</b> Operating	Category II facility; Safety Basis: Approved SRTC BIO, WSRC-TR-93-582, Revision 1, Aug. 96	Earthquake followed by fire; MOI: 5.7E+3 mrem	Radiological and chemical, acids, bases
Central Laboratory Facility 772-F, 772- 1F, 772-4F	<b>Mission:</b> Provide radiochemical analytical process control support for nuclear material stabilization activities and waste management and analytical support for site waste characterization and environmental remediation programs.  <b>Status:</b> Operating	772-F: Category II facility; 772-1F: Category III facility; 772-4F: Radiological facility; B-25 Waste Containers Staging Areas: Category III facility Safety Basis: SAR WSRC-SA-96-26, Sept. 97	Full facility fire; MOI: 2.5E+2 mrem	Radiological and chemical, plutonium and chemicals
MPPC (formerly TNX)	<b>Mission:</b> Non-radiological applied research and development by formal partners of WSRC  <b>Status:</b> Operating	677-T Radiological Remainder of facility: moderate (chemical) Safety Basis: preliminary hazard reports	N/A	Radiological and chemical
Savannah River Ecology Laboratory (SREL)	<b>Mission:</b> Ecological research.  <b>Status:</b> Operating	General use facility Safety Basis: None	N/A	Radiological and chemical

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## Appendix A. Key Facility Summary (cont'd)

FACILITY	MISSION/ STATUS	HAZARD CLASSIFICATION/ AUTHORIZATION BASIS	WORST CASE DESIGN BASIS ACCIDENT	PRINCIPAL HAZARDS AND VULNERABILITIES
F- and H-Area Tank Farms	<p><b>Mission:</b> Receive and store high- and low-level liquid radioactive waste, prepare waste for processing, and feed prepared waste to DWPF and Saltstone for processing into stable, inert solids.</p> <p><b>Status:</b> Operating (with the exception of the replacement high-level waste evaporator, which is under construction)</p>	Category II facilities; Safety Basis: BIO WSRC-RP-94-346, Rev 0, November 95; Design Basis Accident Analysis WSRC-TR-95-0112, Rev 1, Nov. 95	Earthquake, liquid release, (airborne, unmitigated) MOI <sup>(1)</sup> : 4.7E+4 mrem <sup>(2)</sup>	Radiological and chemical, explosions, construction activities (vehicles)
Solid Waste Management Facility (SWMF)	<p><b>Mission:</b> Provides treatment, storage, and disposal of radioactive wastes generated as a result of operations, environmental remediation, and regulatory compliance activities; provides interim storage of transuranic wastes, mixed wastes, and nonradioactive hazardous wastes.</p> <p><b>Status:</b> Operating</p>	Category II and III facilities; Safety Basis: SAR WSRC-SA-22, Rev. 0, March 97	Fire and container rupture following high energy vehicle impact; MOI: 4.8E+3 mrem	Radiological and chemical, radioactive wastes, transuranics (TRU), chemicals, mixed waste, workplace (forklifts, cranes)
In-Tank Processing (ITP)	<p><b>Mission:</b> Processes wastes accumulated in the F- and H-Area waste tanks to produce a decontaminated salt solution for feed to the Saltstone facility and two different slurries (washed sludge and precipitate) containing concentrated radioactive materials for feed to DWPF.</p> <p><b>Status:</b> ITP startup preparations, including potential modifications to the ITP process, have been suspended based on the failure of chemical tests to resolve questions concerning the quantity of benzene generated during separation of cesium salts from high-level waste streams.</p>	Category II facility; Safety Basis: SAR Addendum WSRC-SA-15, Rev. 8, June 95, Safety Evaluation WSRC-RP-97-204, Rev. 0, April 97, Safety Evaluation WSRC-TR-93-207, Rev. 3, December 95, Operational Safety Requirements WSRC-RP-94-303, Rev. 21, July 98.	Precipitate fire in waste tank annulus; Co-located worker: 5.2E+4 mrem, MOI: 8.3E+1 mrem	Radiological and chemical, combustible gases, construction activities (vehicles)
Consolidated Incinerator Facility 261-H	<p><b>Mission:</b> Incinerates combustible low-level radioactive, hazardous, and mixed (containing both hazardous and radioactive components) wastes (solids and liquids).</p> <p><b>Status:</b> Operating</p>	Radiological/low chemical hazard facility; Safety Basis: ASA WSRC-TR-96-0212, Oct. 96	Fire	Radiological and chemical, radioactive and chemical wastes

Note 1: Maximum Offsite Individual; equivalent to "Site Boundary"

Note 2: Unless otherwise noted, all dose rates are "mitigated" (i.e., filtering/shielding mechanisms credited)

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